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# **Technology Exchange between the United States and the Soviet Union**

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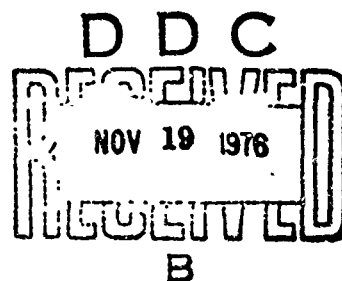
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TECHNOLOGY EXCHANGE BETWEEN THE UNITED STATES AND THE SOVIET UNION\*

I

There are three questions bearing on this general subject that I will briefly address:

1. Technology export--Should present policy on the control of high-technology exports to the Soviet Union be changed?
2. Technology import--Is there a need for initiating policy action in this area to encourage the import of technology from the Soviet Union?
3. Soviet capacity to pay--How large is it, what are the prospects, and what implications do they suggest?

I should emphasize that there are many facets of the general subject of these hearings that my comments will not address at all, or will only touch on lightly, including the growing number of technology cooperation agreements between firms in the United States and government agencies in the Soviet Union.

II

On the first question, whether present export control policy should be changed, a few background comments are in order. US export controls have been in effect for the last two decades, first under the Battle Act of 1951 and more recently under the Export Administration Act of 1969. Under these controls, the US and its NATO allies, plus Japan, have prohibited the export of military goods to communist countries and have restricted the export of high-technology civilian goods that also have military applications, such as advanced computer systems, telecommunications equipment, integrated-circuit production machinery, and numerically-

\* Remarks prepared for delivery to the Subcommittee on International Cooperation in Science and Space of the House Committee on Science and Astronautics, December 6, 1973.

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controlled machine tools. In recent years and months these controls have been reduced. Should they be further relaxed, and, if so, at what pace and to what degree?

There are many aspects to this question: security, political, and economic. The security aspects concern the kinds and the quality of enhanced Soviet military capabilities that might result from relaxing these controls. For the maintenance of controls on high-technology exports to make good sense, the magnitude of these potentially enhanced capabilities would have to be substantial. Otherwise, it is hard to reconcile two prevailing, but different, US policies: on the one hand, the maintenance of controls; and, on the other, the permission, even encouragement, of such "lower-technology"\* exports to the Soviet Union as wheat, or production machinery for the Kama River truck plant, or smaller computers, and of such "high-technology" transfers as those covered under the six broad areas of joint US-Soviet R&D which have been initiated under the May 1972 accords, and under the dozen or more agreements signed by the Soviets with particular US firms under Article 4 of those accords. These uncontrolled exports and technology transfer agreements save Soviet resources, or contribute to more efficient operation of the Soviet economy, and thereby to potentially enhanced military capabilities, if the Soviets choose to expand them. So there has to be something special and different about the potential security effects of the controlled exports, compared with the general resource-saving and efficiency-contributing effects of uncontrolled exports and technology transfer agreements, if the two differing sets of US policies are to make sense.

There are also political aspects, relating to the gains that might be realized in a period of detente by relaxing controls, and thereby further encouraging technology export. It seems to me that these political gains, while not entirely implausible, are far from clear. Some views expressed in the US advance the hope that expanded technology export to the Soviet Union, and expanding East-West economic relationships generally, will contribute to various political goals: for example, more restrained Soviet

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\* By failing to define "higher" and "lower" technology, and indeed "technology" as well, I do not mean to imply that the terms are either well-understood or unambiguous. In fact, they are neither.

conduct abroad, and decentralization and even liberalization at home.

On the other hand, Soviet views, while welcoming expanded economic relationships, explicitly deny that such political effects will ensue at all. At the least, there is little in the way of hard evidence to confirm or reject either side. Each of us remains his own expert on the matter of political gains.

And there are economic aspects to the question, notably such economic aspects as relate to the potential economic gains for US exports if Eastern European and Soviet markets were opened up to these now-controlled exports. There are other economic aspects relating to the possible improvement in the performance of the Soviet economy that might result from increased imports of these goods. Some work I have been involved in attempts to make preliminary estimates of some of these potential economic gains. The gains are likely to be modest: modest, though not negligible, in the case of increased US exports of certain of these controlled products; and probably quite modest in the case of their effects on the productivity and efficiency of the civilian sector of the Soviet economy.

As a very rough and preliminary personal judgment about the several aspects of the question of controls on high-technology exports, my own view is that we should be more concerned with what we can get in return than with whether to relax controls.

### III

On the second question of technology import, the issue is whether a policy should be initiated, where none presently exists, to do something about facilitating the flow of technology in the reverse direction. Here the main issue is whether there have been significant barriers in the past to the free flow of technology from the Soviet Union, and whether as a consequence there is an accumulated stock of technology, from which the US could benefit. There may be some interesting and useful opportunities for us to benefit from Soviet technology in such fields as heavy metallurgy, continuous casting, and construction technology in permafrost and tundra regions, such as those we will be faced with in the

construction of the Trans-Alaska Pipeline--that is, in fields in which the Russians have had stronger reasons than we to devote R&D effort in the past. Through bargaining, perhaps as a quid pro quo for a relaxation of export controls, and through other policy measures, we should endeavor to: (a) identify those areas in which we can benefit from Soviet technology; and (b) facilitate technology import in those cases. Perhaps it would be worthwhile to consider focusing responsibility within the US government for technology import.

#### IV

The question of Soviet capacity to pay is of pervasive importance, whether the issue concerns product exports, or joint investment ventures, or licensing, as a means of technology transfer. To expand their limited capacity, the Soviet Union has three options: increasing their own exports, selling gold from inventory or current production, and obtaining outside credits.

Increased exports depend, in part, on MFN treatment for Soviet and Eastern European products in US markets. However, the Russians generally seem to prefer payment through "buy-back" arrangements, such as those which apply to their joint venture with Fiat, and prospectively to their undertakings with Occidental Petroleum. In these cases, payment for foreign technology and investment takes the form of a portion of the subsequent output (of Fiat automobiles, or natural gas, respectively) and thus relies on deferred increases in Soviet exports. It is worthwhile considering how such arrangements affect the relative leverage and bargaining power of both parties to the arrangement.

Soviet gold stocks and production provide a second payment option. According to data presented to the Joint Economic Committee earlier this year,\* Soviet gold stocks in 1972 were just under 2,000 metric tons, about \$3 billion at the \$42 per ounce official price, and more than twice that amount at the free-market rate. Soviet gold sales in 1972 were about 150 tons, probably resulting in foreign exchange proceeds of about \$500 million to help finance the Soviet Union's import surplus in that year. In earlier years, the Russians have sold as much as 500 tons (1965) in foreign gold

\* Soviet Economic Prospects for the Seventies, A Compendium of Papers Submitted to the Joint Economic Committee, Congress of the United States, June 27, 1973 (U. S. Government Printing Office, Washington, 1973).

markets. The Soviet Union is the world's second largest gold producer, though reliable estimates of its annual output are not readily available. One estimate places 1971 output at 212 tons, or up to \$700 million, depending on the market prices at which conversion took place. The elasticity of Soviet output is still more obscure. All of this adds up to a distinctly limited, though not negligible, Soviet capacity to pay for technology and product imports by using its gold resources.

What about outside credits? Between 1969 and 1972, the USSR drew more than \$3 billion in medium-term Western credits to finance imports of machinery, equipment, and technology, mainly from Western Europe. I don't know what the Soviet Union's prospects for obtaining commercial credits from the private financial sector in the US are likely to be. Indeed, it is possible that some pressure may arise for the government to extend concessional credits to the Soviet Union in order to facilitate exports and technology transfer. Moreover, this pressure might grow as a result of possible further relaxation of export controls. Relaxation of controls would, for example, very likely place the onus of restricted trade on the Soviet Union's capacity to pay, where formerly it was placed on the controls. The consequence of relaxed controls might thus be increased pressure from the US business and financial community to provide government concessional credits to the Soviet Union. Such a contingency should, in my judgment, be viewed with the utmost caution and resistance, among other reasons because it would have adverse effects on the reactions of our allies, as well as of the less-developed countries whose views about the parsimoniousness of US foreign aid are well known.

V

I would like to conclude with a point that has been implicit in much of the preceding comments. In general, expanded technology exchange and trade with the Soviet Union seem to me desirable. The concerns I have expressed throughout these comments relate to the asymmetry of these "exchanges." For example, in the workings of Article 4 of the May 1972 agreements, the US may be at a distinct disadvantage. It may be a lot easier



and more lucrative for Russian agencies, coordinated by the State Committee on Science and Technology, to deal with a multiplicity of US firms and to extract favorable terms in doing so, than for these or other US firms to extract equally advantageous terms from dealing with Soviet governmental operating agencies, institutes, or laboratories. The situation is one in which a single buyer is dealing with multiple sellers, and the balance of advantage is likely to be in the buyer's favor.

Moreover, there is surely less in the way of technology import from the Soviet Union that we can benefit from anyhow, even if the bargaining situations were more nearly symmetrical.

Finally, on the possible extension of credits, it's quite clear where the balance of advantage in such a course of action would lie.

My conclusion from this is simply that we should endeavor to reduce the asymmetry, not remove it. We should seek to get more in return: more technology import; more current payment, rather than deferred payment through "buy-back" arrangements; more incentives for the Russians to use their gold stocks and production to provide current liquidity; and higher prices for what is exported (in sharp contrast to the grain episode) perhaps by measures that assure US firms access to better information about Soviet activities, negotiations, and needs.

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